



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of                      Group Art Unit: 1754  
Teruhiko NAWATA, et al.              Examiner: Ngoc-Yen M. Nguyen  
Serial No. 10/717,855  
Filed: 11/19/2003

For: As-Grown Single Crystal of Calcium Fluoride

The Honorable Commissioner of Patents and Trademarks  
United States Patent and Trademark Office  
Washington, D. C. 20231

Sir:

DECLARATION UNDER 37 CFR 1.132

I, Teruhiko NAWATA, declare and state that:

1. In March 1989, I was graduated from the graduate course of Kyushu University, Engineering Research Department, majoring in nuclear engineering and received a degree of Master of Engineering from the same University.

Since April 1989, I have been an employee of TOKUYAMA CORPORATION, and till the present time I have been engaged in the research and development work concerning polymer science, polymer processing and crystal growth.

2. I am a co-inventor of the invention described in the specification of the above-identified application.

3. I carried out the following experiments.

Experiments 1 and 2 (comparative)

Pulling of a calcium fluoride single crystal was carried out in the same manner as in Comparative Example 1 of the specification, except that pulling-up time was prolonged so

as to obtain two as-grown single crystals of calcium fluoride having length of straight barrel part of 7 cm and 8 cm.

The single crystal having length of straight barrel part of 7 cm had a straight barrel part maximum diameter of 21 cm and a weight of 10.4 kg. Measurement of birefringence of the as-grown single crystal resulted in 4.131 nm/cm. The standard deviation of the measured values of the birefringence was 3.45 nm/cm.

The single crystal having length of straight barrel part of 8 cm had a straight barrel part maximum diameter of 21 cm and a weight of 11.8 kg. Measurement of birefringence of the as-grown single crystal resulted in 6.428 nm/cm. The standard deviation of the measured values of the birefringence was 5.81 nm/cm.

The undersigned declares further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted.

Teruhiko Nawata  
Teruhiko NAWATA

This 29th day of June, 2005